



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,471	09/28/2004	Peter-Michael Merbach	10900106PUS1	2207
60601 7590 12/24/2008 Muncy, Geissler, Olds & Lowe, PLLC P.O. BOX 1364 FAIRFAX, VA 22038-1364				
EXAMINER				
LEMMA, SAMSON B				
ART UNIT		PAPER NUMBER		
2432				
MAIL DATE		DELIVERY MODE		
12/24/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/509,471

Applicant(s)

MERBACH ET AL.

Examiner

Samson B. Lemma

Art Unit

2432

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21, 23-28 and 30-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21, 23-28 and 30-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 17, 2008 has been entered.

2. Claims 22 and 29 are canceled. Claims 1-20 were previously canceled. Thus claims 21, 23-28, 30-43 are pending/examined of which claims 21 and 43 are independent.

Response to Arguments

3. Applicant's remark/arguments filed on 10/15/2008 regarding independent claim 1 have been fully considered but are moot in view of new ground/s of rejection.

Applicant's remark/arguments filed on 10/15/2008 regarding independent claim 43 have also been fully considered but they are not persuasive.

As per independent claim 43, Applicant's argument such as the limitation recited as "wherein the illuminating of the object includes directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes

analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light- spectroscopic analysis" is not disclosed by the reference/s on the record is not persuasive.

This is because such limitation as it shown on former dependent claim 29 is already addressed by the previous final office action. Please see page 19 of the previous final office action. The secondary reference/s on the record, Einighammer on figure 1-3 and 7; paragraph 0004, 0008, 0011-0012 and abstract discloses the above argued features.

In order to clarify how each and every limitation recited in independent claim 43 is disclosed by the reference/s on the record, Examiner would point out the following.

As per dependent claim 43 Marius, the primary reference on the record discloses a method for recognition of biometric data [See abstract, "biometric characteristics of fingertips"]: **comprising**

- **illuminating an object** [figure 1a ref. Num "1"/finger] **using a light source** [Figure 1a ref. Num "4" and figure 1d, ref. Num "4 & 8"];
- **Acquiring a plurality of images of the object from at least two different imaging directions** [Figure 1a ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives.."
Furthermore on claim 4 the following has been disclosed "method

for person identification according claim 1, characterized in that a system existing from **two or more cameras the finger crest simultaneous from various perspective takes up**, whereby the cameras can exhibit the additional embodiment of the claims 2 and 3".]

using optical scanning [figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b);

- **Acquiring numerical data for each of at least two of the plurality of images using digital image processing** ["title, "Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images"];]
- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from**

the reference model within a predetermined tolerance [See title and on page 2, paragraph 6, the following has been disclosed. "the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has been disclosed, the biometric method introduced here can be used for Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ..." And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined tolerance to identify and recognize/authenticate and authorized the subject/ object/ person for a particular purposes]

Marius does not explicitly teach the particular features such as the illuminating of the object includes directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis and wherein an intensity of the light backdiffused from the object is measured at the at least two points and compared to a reference value.

However, in the same field of endeavor, **Einighammer on figure 1-3 and 7; paragraph 0004, 0008, 0011-0012 and abstract discloses the above features.**

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 21, 23-28 and 30-42** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Annoff Marius** (hereinafter refereed as **Marius**) (European patent No. DE10123561) (Published on October 18, 2001) (Published on October 18, 2001; submitted with IDS) (See reference U, for the equivalent computer translated English version) in view of **Bolle et al** (hereinafter refereed as **Bolle**) (U.S. Publication No. 2004/0042642) (filed on September 3, 2003) (Continuation of application No. 09/537,077 filed on March 28, 2000) further in view of **Einighammer et al** (hereinafter referred as **Einighammer**) (US Patent Publication No. 2006/0056661 A1) (field on May 23, 2002)

6. **As per independent claim 21 and dependent claim 23-26, 42 Marius**

discloses a method for recognition of biometric data [See abstract,

"biometric characteristics of fingertips"]: **comprising**

- **illuminating an object** [figure 1a, ref. Num "1"/finger] **using a light source** [Figure 1a, ref. Num "4" and figure 1d, ref. Num "4 & 8"];
- **Simultaneously acquiring a plurality of images of the object from at least two different imaging directions** [Figure 1a, ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives..", see also claim 4, "Furthermore on claim 4 the following has been disclosed "method for person identification according claim 1, characterized in that a system existing from **two or more cameras the finger crest simultaneous from various perspective takes up**, whereby the cameras can exhibit the additional embodiment of the claims 2 and 3".]

using optical scanning [figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b);

- **Acquiring numerical data for each of at least two of the plurality of images using digital image processing ; calculating a three-dimensional model of the object from the numerical data of each of the at least two images** [*“title, “Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images”*];
- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model within a predetermined tolerance** [*See title and on page 2, paragraph 6, the following has been disclosed. “the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has been disclosed, the biometric method introduced here can be used for Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ...” And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined*

Art Unit: 2432

tolerance to identify and recognize/authenticate and authorized the subject/object/person for a particular purposes]

Marius does not explicitly teach the particular features that the biometric data includes at least one characteristic of one of fingers and face of a person

However, in the same field of endeavor, **Bolle on paragraph 0055, lines 5-17 discloses the following which meets the above feature.**

*"The user 410 offers a traditional biometric 420 for authentication or identification purposes. Such a biometrics **could be a fingerprint, iris or face.** However, rather than holding the biometrics still, as in the case of fingerprints or faces, or keeping the eyes open, as in case of iris recognition, the user performs some specific action 430, $a(t)$ with the biometrics. This action is performed over time 432, from time 0 (434) to some time T (436). Hence, the action $a(t)$ is some one-dimensional function of time 430 and acts upon the traditional biometric 420. Note that this biometric is the actual biometric of user 410 and not a biometrics signal (i.e., in the case of fingerprints, **it is the three-dimensional finger with the print on it).**"*

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of biometric data including at least one characteristic face of a person as per teachings **Bolle** into the method as taught by

Marius, for the purpose of providing a backward compatible biometrics methods such as faces for authentications is backward compatible with fingerprint databases. [See **Bolle** for instance paragraph 0018]

However, the combination of Marius and Bolle does not explicitly teach the particular features such as the illuminating of the object includes directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis.

However, in the same field of endeavor, **Einighammer on figure 1-3 and 7; paragraph 0004, 0008, 0011-0012 and abstract discloses the above features.**

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis and wherein an intensity of the light backdiffused from the object is measured at the at least two points and compared to a reference value as per teachings of

Einighammer into the method taught by the combination of **Marius and Bolle**, for the purpose of indicating a method with which the security of biometric methods for checking access authorization, can be improved to prevent attempts for deception. [See Einighammer on paragraph 0003]

7. **As per dependent claim 27 the combination of Marius, Bolle and Einighammer discloses a method as applied to claims above. Furthermore Bolle discloses the method wherein the object is a face, wherein the plurality of images includes a front image and a lateral image, and wherein an ear is at least partially visible in the lateral image. (On paragraph 0055, lines 5-17, Bolle discloses the following which meets the above feature. "The user 410 offers a traditional biometric 420 for authentication or identification purposes. Such a biometrics could be a fingerprint, iris or face. However, rather than holding the biometrics still, as in the case of fingerprints or faces, or keeping the eyes open, as in case of iris recognition, the user performs some specific action 430, $a(t)$ with the biometrics. This action is performed over time 432, from time 0 (434) to some time T (436). Hence, the action $a(t)$ is some one-dimensional function of time 430 and acts upon the traditional biometric 420. Note that this biometric is the actual biometric of user 410 and not a biometrics signal (i.e., in the case of fingerprints, it is the three-dimensional finger with the print on it)."**

8. **As per dependent claim 28 and 30 the combination of Marius, Bolle and Einighammer** discloses a method as applied to claims above. Furthermore Einighammer discloses the method *wherein* at least one of the plurality of images is acquired using light of a first wavelength and at least one other of the plurality of images is acquired using light of a second wavelength different from the first wavelength used and wherein the first wavelength is 678 nm and the second wavelength is about 808 nm to 835 nm, the first wavelength representing light to acquire at least one of the plurality images and the second wavelength representing light acquire at least one other of the plurality of images. (paragraph 0007) *(for instance on paragraph 0007, the following has been disclosed. "In order to improve the measurement result, it is furthermore provided, within the scope of the invention, that several limited spectrum ranges are used for illuminating the irradiation point. It is advantageous, in this connection, if light from the spectrum ranges around **600 nm and around 800 nm** is used for illuminating the irradiation point, since a great absorption jump in the hemoglobin as well as an absorption drop in the skin pigment melanin can be detected **between these wavelengths**, and furthermore, the varying oxygen saturation of the skin does not have any influence on the measurement."* Furthermore on

*paragraph 0014-0015, **Einighammer** further discloses the following which meets the above limitation. "To determine the scatter function, it is advantageous if several light sources are arranged in the illumination ring, which emit light at different wavelengths. In this connection, it is advantageous if the number of light sources is correlated with a wavelength having the scatter and absorption capacity (scatter function) of the skin at this wavelength, so that light having a wavelength the scatter function of which leads to a greater attenuation of the intensity at the given distance, is irradiated in at the irradiation point, by way of the illumination ring having an averaged irradiation intensity, in order to thereby obtain a sufficient measurement signal, which is comparable with the measurement signals of other wavelengths, with regard to intensity."*[paragraph 0014] *"Two illumination rings arranged concentric to one another are provided, which **emit light of different wavelengths.**" [paragraph 0015])*

9. **As per dependent claim 31-32 the combination of Marius, Bolle and Einighammer discloses a method as applied to claims above. Furthermore Einighammer discloses a method** wherein the illuminating is performed punctually using additional light sources in at least one of a visible and infrared spectral range two at least two points on the object and wherein an intensity of the light back diffused from the object is measured at the at least two points and compared to a reference value. **(figure 1-3 and 7;**

paragraph 0004, 0008, 0011-0012 and abstract discloses the above feature)

10. As per claim 33 the **combination of Marius, Bolle and Einighammer discloses a method as applied to claims above.**
Furthermore Marius discloses a method for recognition of biometric data as applied to claims above. Furthermore Marius discloses the method wherein the plurality of other images are acquired by skewing the object stepwise around an axis running through the object and wherein at least two of the plurality of other images are saved in several discrete situations respectively and are joined together to at least one three-dimensional model reference model. [*"title, "Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images"*]
11. **As per dependent claim 34 the combination of Marius, Bolle and Einighammer discloses a method as applied to claims above.** **Furthermore Marius** discloses a method wherein a plurality of light source [*figure 1d, ref. Num "4 & 8"*] are switched in a pulse-coded manner and, synchronously, an analysis of the signal is performed using an image receiver array. (figure 1a-1d; 2a-2b and figure 3)

12. **As per dependent claims 35-39 the combination of Marius, Bolle and Einighammer** discloses an apparatus as applied to claims above. Furthermore Marius discloses an apparatus comprising: at least one illumination device configured to emit at least one of a visible and an infrared light [Figure 1c, ref. Num "4"]; and at least two light detectors configured to acquire independent images [Figure 1c, ref. Num "2" & "3"; see also figure 1d; figure 2a, 2b and figure 3].
13. **As per claim dependent claim 40 the combination of Marius, Bolle and Einighammer** discloses an apparatus as applied to claims above. Furthermore Marius discloses the apparatus wherein the plurality of light detectors are part of an electronic camera and wherein several images are acquired by the camera from different directions and are merged using beam-combining optical elements. [figure 1c-1d; figure 2a-2b; figure 3]
14. **As per claim 41 the combination of Marius, Bolle and Einighammer** discloses an apparatus as applied to claims above. Furthermore Marius discloses the apparatus wherein the plurality of light wherein for punctual illumination, the at least two light sources [Figure 1d, ref. Num "4" and "8"] are disposed as an independent module[Figure 1d].
15. **Independent claims 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Annoff Marius** (hereinafter refereed as **Marius**)(European Patent No. DE10123561 A1) (Published on

October 18, 2001; submitted with IDS) (See reference U, for the equivalent computer translated English version) in view of Einighammer et al (hereinafter referred as **Einighammer**) (US Patent Publication No. 2006/0056661 A1) (field on May 23, 2002)

16. **As per dependent claim 43 Marius, the primary reference on the record discloses a method for recognition of biometric data** [See abstract, "biometric characteristics of fingertips"]:
comprising
- **illuminating an object** [figure 1a ref. Num "1"/finger] **using a light source** [Figure 1a ref. Num "4" and figure 1d, ref. Num "4 & 8"];
 - **Acquiring a plurality of images of the object from at least two different imaging directions** [Figure 1a ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives.."] Furthermore on claim 4 the following has been disclosed "method for person identification according claim 1, characterized in that a system existing from **two or more cameras the finger crest simultaneous from various perspective takes up**, whereby the cameras can exhibit the additional embodiment of the claims 2 and 3".]
using optical scanning [figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that

captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b);

- **Acquiring numerical data for each of at least two of the plurality of images using digital image processing** [*“title, “Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images”*];
- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model within a predetermined tolerance** [*See title and on page 2, paragraph 6, the following has been disclosed. “the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has been disclosed, the biometric method introduced here can be used for*

Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ...” And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined tolerance to identify and recognize/authenticate and authorized the subject/object/person for a particular purposes]

Marius does not explicitly teach the particular features such as the illuminating of the object includes directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis and wherein an intensity of the light backdiffused from the object is measured at the at least two points and compared to a reference value.

However, in the same field of endeavor, **Einighammer on figure 1-3 and 7; paragraph 0004, 0008, 0011-0012 and abstract discloses the above features.**

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted

Art Unit: 2432

portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis and wherein an intensity of the light backdiffused from the object is measured at the at least two points and compared to a reference value as per teachings of **Einighammer** into the method taught by **Marius**, for the purpose of indicating a method with which the security of biometric methods for checking access authorization, can be improved to prevent attempts for deception. [See Einighammer on paragraph 0003]

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samson B Lemma whose telephone number is 571-272-3806. The examiner can normally be reached on Monday-Friday (8:00 am---4: 30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BARRON JR GILBERTO can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 703-873-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.

12/05/2008

/Samson B Lemma/
Examiner, Art Unit 2432

/Gilberto Barron Jr/
Supervisory Patent Examiner, Art Unit 2432